The National ITS Architecture

Module 2

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Module Goals

- To provide an overview of the National Architecture
- To discuss advantages of conforming to the National ITS Architecture

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Module Outline

- The National ITS Architecture
- Benefits of conformity

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The National ITS Architecture

- What is an Architecture?
- Vision
- Mission
- Example
- Interconnects
- What it is NOT
- What does the National ITS Architecture consist of?

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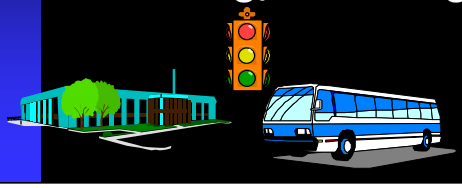
What Is an Architecture?

- Identifies boundaries and participants
- Describes activities or functions
- Provides framework for planning, defining, and integrating your ITS



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National ITS Architecture: *Vision*

- Provide a framework for the definition of standards
- Provide the basis for integration among systems
- Ensure a high degree of flexibility in user choice

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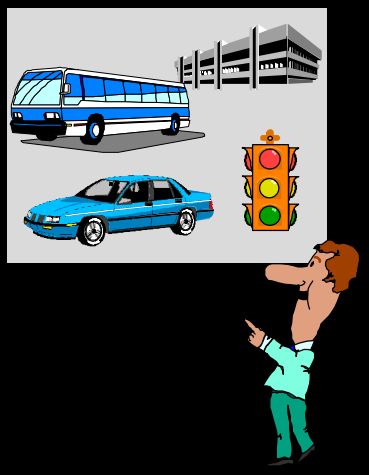
National ITS Architecture Provides Framework

- Description of activities or functions
- Options for you to consider for your regional and local ITS
- Set of tools to assist integration
- Information source for institutional linkages



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National ITS Architecture: *Mission*

- Architecture is the framework of interconnected subsystems
  - provides ITS services by defining functions and interfaces

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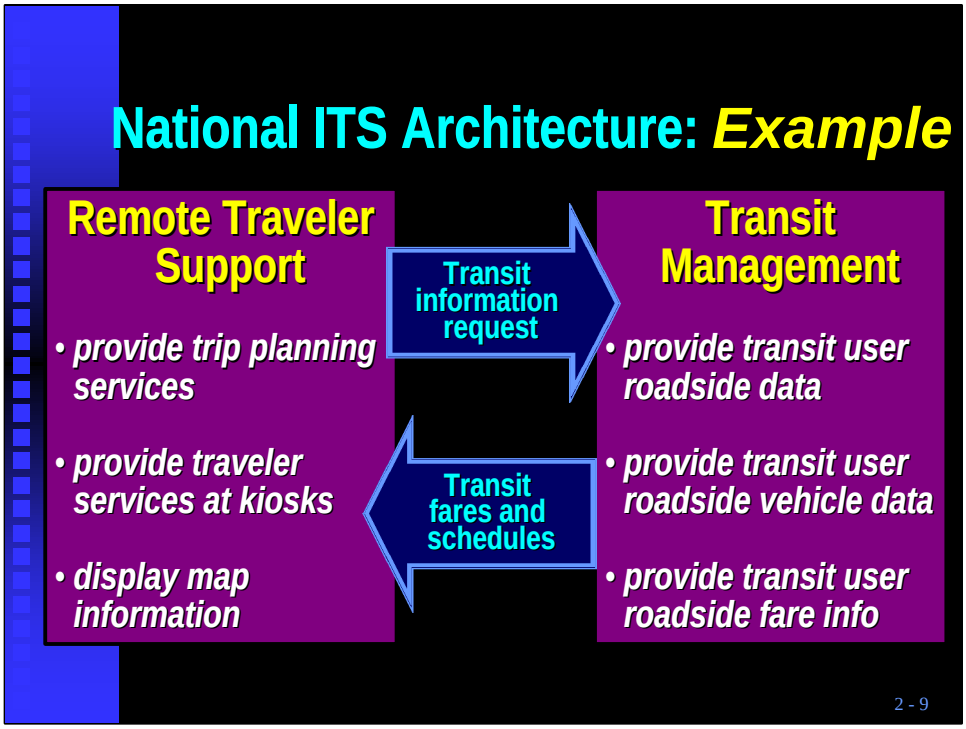
National ITS Architecture: Example
Remote Traveler Support
• provide trip planning services
• provide traveler services at kiosks
• display map information
Transit information request
Transit fares and schedules
Transit Management
• provide transit user roadside data
• provide transit user roadside vehicle data
• provide transit user roadside fare info
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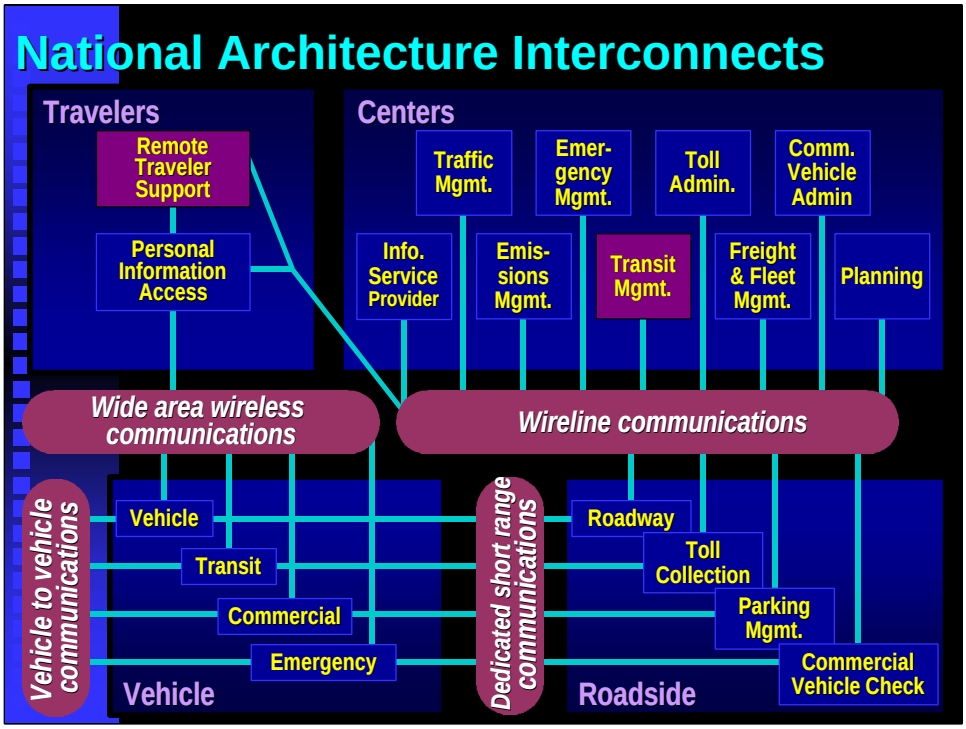
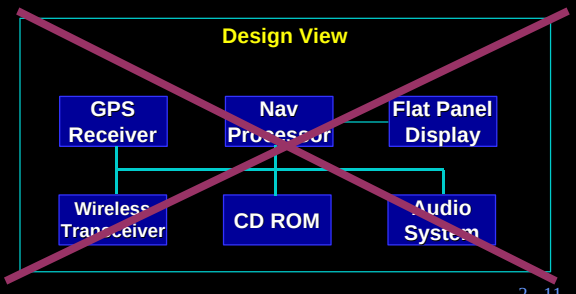

National Architecture Interconnects
Travelers
Remote Traveler Support
Personal Information Access
Centers
Traffic Mgmt.
Emer-gency Mgmt.
Toll Admin.
Comm. Vehicle Admin
Info. Service Provider
Emis-sions Mgmt.
Transit Mgmt.
Freight & Fleet Mgmt.
Planning
Wide area wireless communications
Wireline communications
Vehicle to vehicle communications
Vehicle
Transit
Commercial
Emergency
Vehicle
Dedicated short range communications
Roadway
Toll Collection
Parking Mgmt.
Commercial Vehicle Check
Roadside

The National ITS Architecture: What It Is NOT

- A design document
- Technology prescriptive
- An institutional or development process



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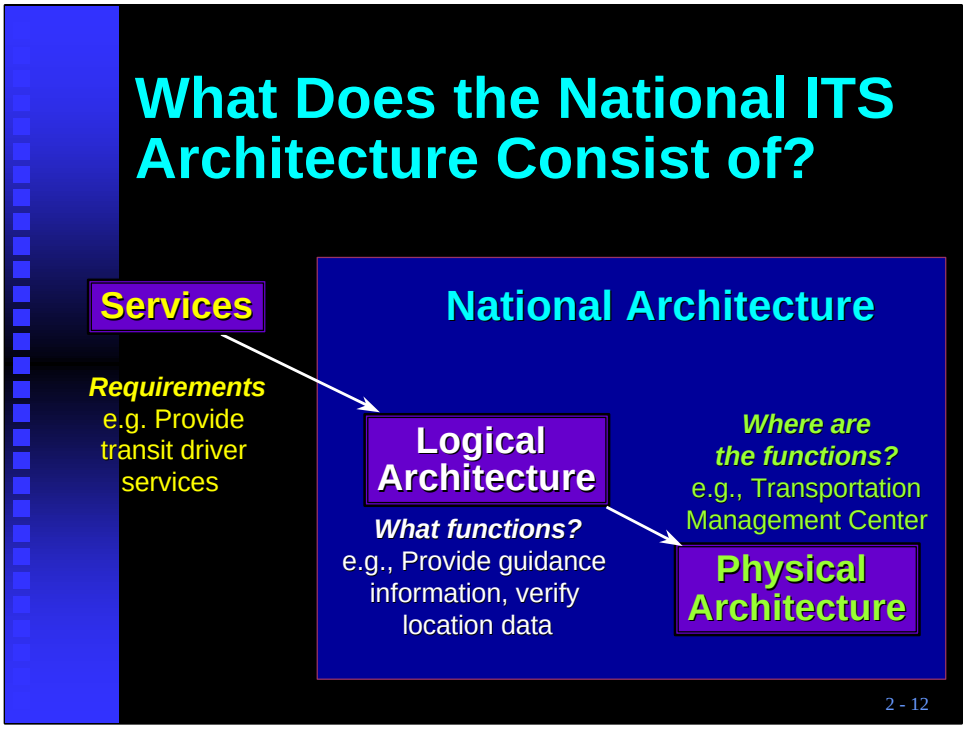
What Does the National ITS Architecture Consist of?
Services
Requirements
e.g. Provide transit driver services
National Architecture
Logical Architecture
What functions?
e.g., Provide guidance information, verify location data
Where are the functions?
e.g., Transportation Management Center
Physical Architecture
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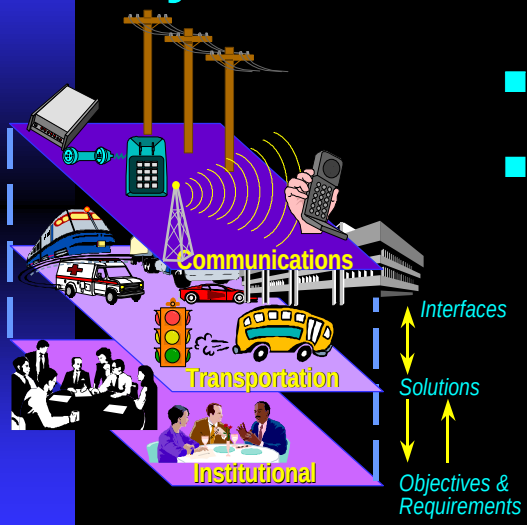
Physical Architecture



- Defines physical entity interfaces
- Distributes functionality:
  - communications
    - how info is transferred between systems
  - transportation
    - what systems transfer what information
  - institutional
    - supporting structure, policies and strategies

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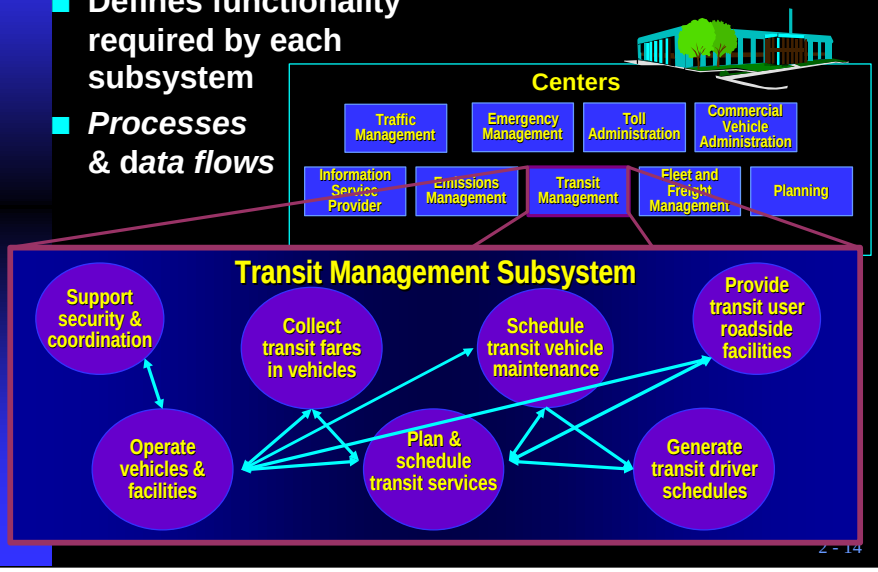
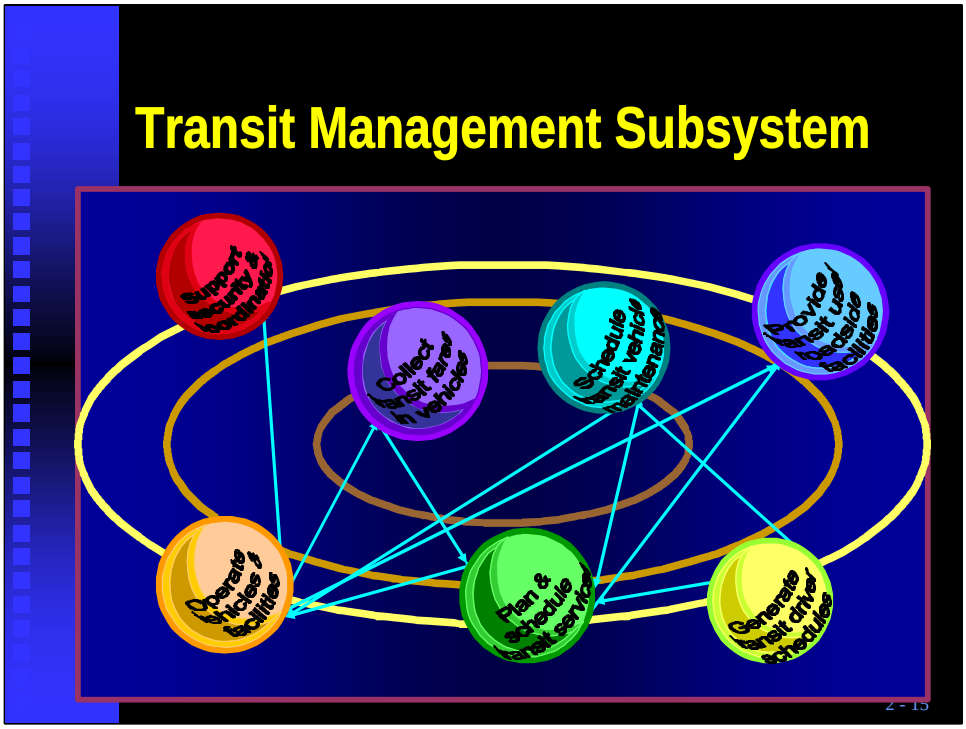
Logical Architecture

- Defines functionality required by each subsystem
- *Processes & data flows*




Transit Management Subsystem
Support security & coordination
Collect transit fare & vehicles
Schedule transit vehicle maintenance
Provide transit user roadside facilities
Operate vehicles & facilities
Plan & schedule transit service
Generate transit driver schedules
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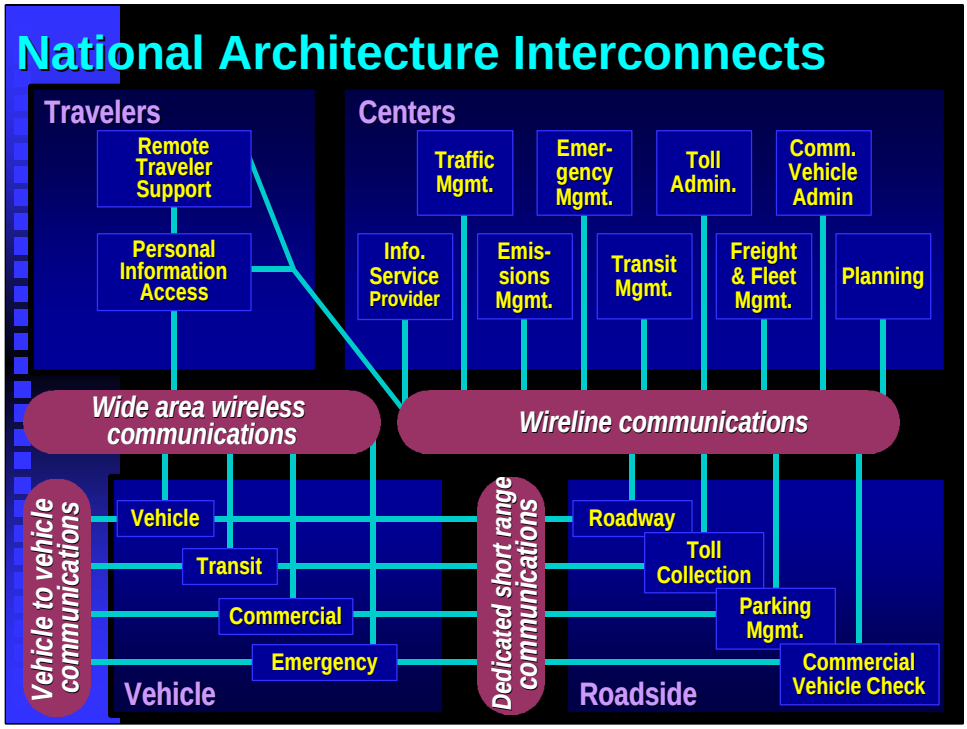
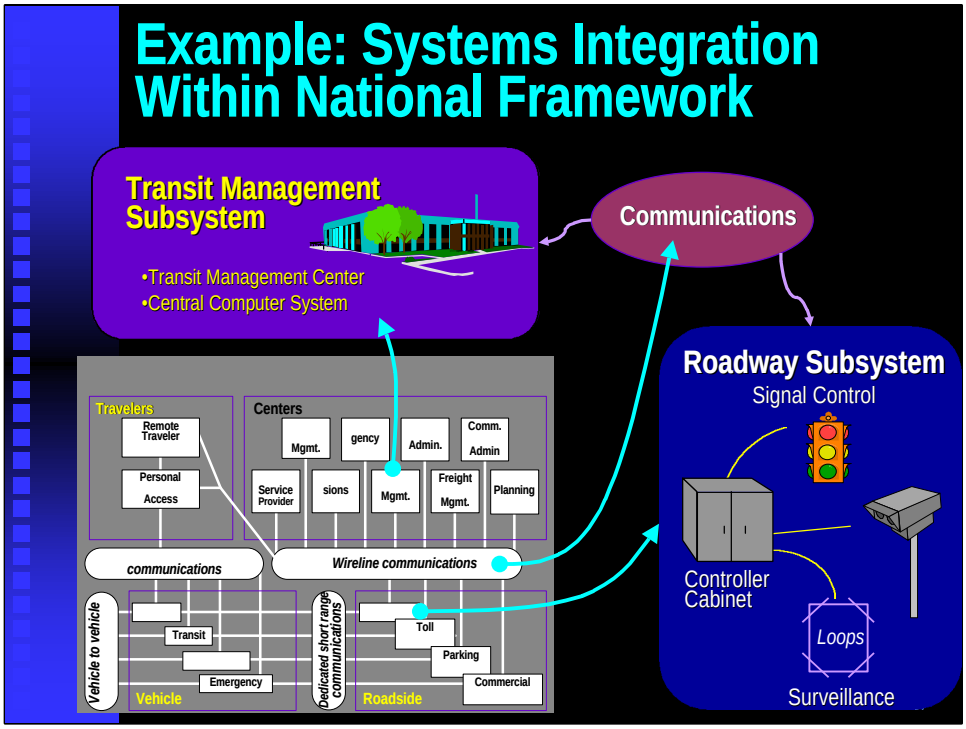

National Architecture Interconnects
Travelers
Remote Traveler Support
Personal Information Access
Centers
Traffic Mgmt.
Emer-gency Mgmt.
Toll Admin.
Comm. Vehicle Admin
Info. Service Provider
Emis-sions Mgmt.
Transit Mgmt.
Freight & Fleet Mgmt.
Planning
Wide area wireless communications
Wireline communications
Vehicle to vehicle communications
Vehicle
Transit
Commercial
Emergency
Vehicle
Dedicated short range communications
Roadway
Toll Collection
Parking Mgmt.
Commercial Vehicle Check
Roadside


Example: Systems Integration Within National Framework
Transit Management Subsystem
•Transit Management Center
•Central Computer System
Communications
Roadway Subsystem
Signal Control
Controller Cabinet
Loops
Surveillance
Travelers
Remote Traveler
Personal Access
Centers
Mgmt.
gency
Admin.
Comm. Admin
Service Provider
sions
Mgmt.
Freight Mgmt.
Planning
communications
Wireline communications
Vehicle to vehicle
Transit
Emergency
Vehicle
Dedicated short range communications
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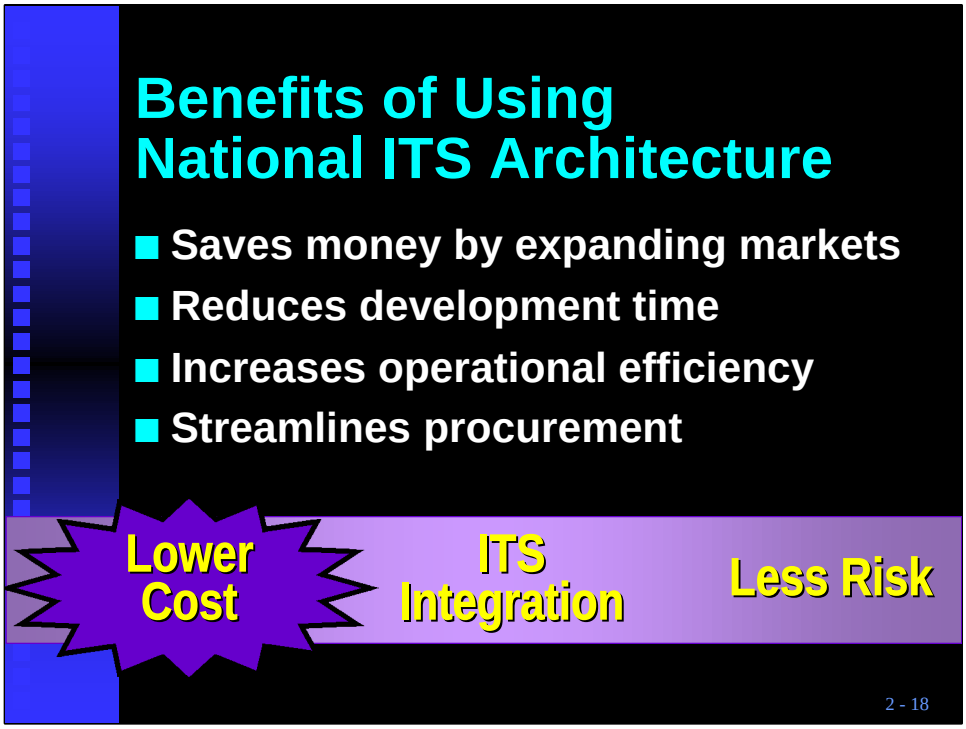
Commercial
Roadside


Benefits of Using
National ITS Architecture
Saves money by expanding markets
Reduces development time
Increases operational efficiency
Streamlines procurement
Lower Cost
ITS Integration
Less Risk
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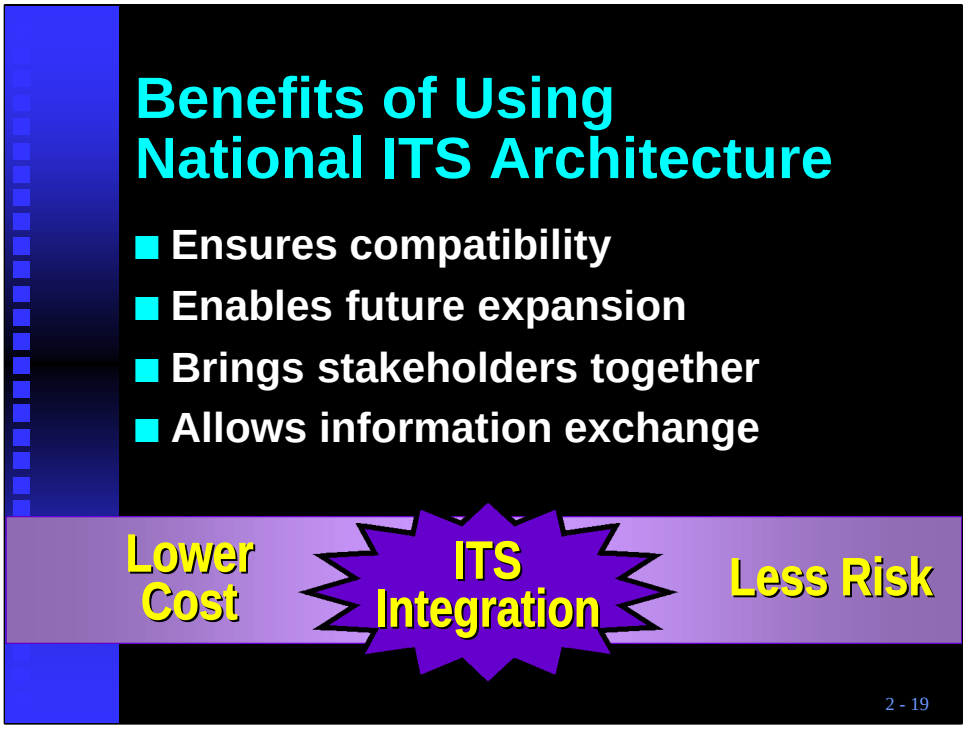
Benefits of Using
National ITS Architecture
Ensures compatibility
Enables future expansion
Brings stakeholders together
Allows information exchange
Lower Cost
ITS Integration
Less Risk
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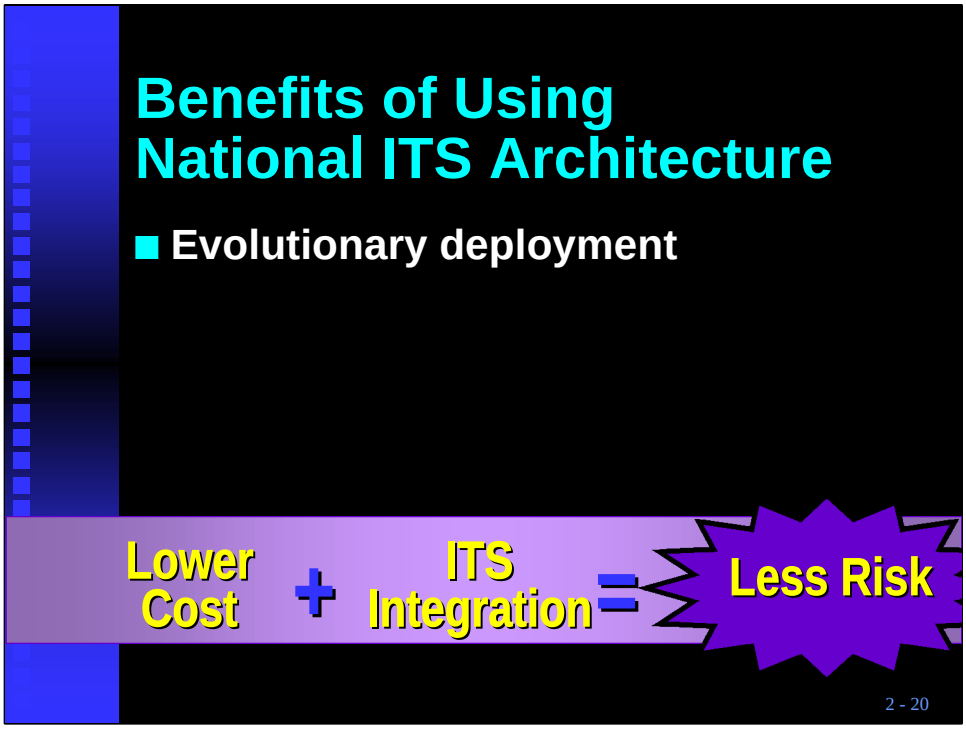
Benefits of Using
National ITS Architecture
Evolutionary deployment
Lower Cost
+
ITS Integration
=
Less Risk
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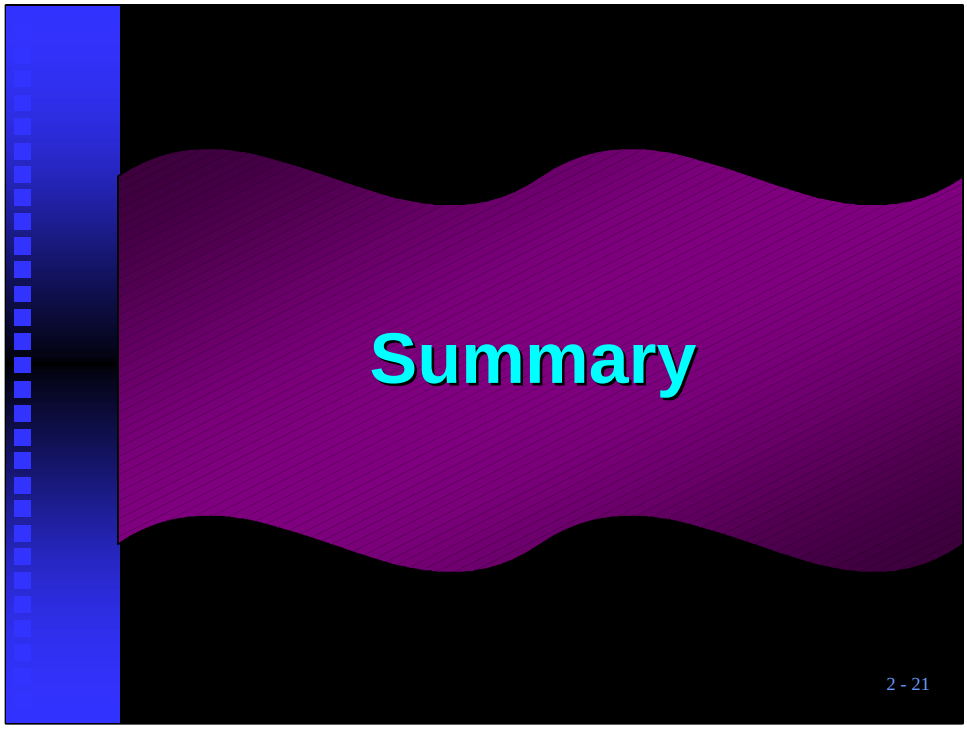
Summary
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